

# DIMENSIONS OF LIFE: A SYSTEMS APPROACH TO THE INORGANIC AND THE ORGANIC IN PAUL TILlich AND PIERRE TEILHARD DE CHARDIN

*by James E. Huchingson*

*Abstract.* Systems theory provides a surprisingly fruitful approach to several important ideas held in common by Paul Tillich and Pierre Teilhard de Chardin. These include complexity or organization as the key to understanding the distinction between the inorganic and the organic, and hierarchy or levels in complex systems. Teilhard and systems theorists accept hierarchy as fundamental. Tillich questions the concept and prefers “dimensions,” including the inorganic, organic, psychological, spiritual, and historical dimensions. Tillich’s rejection of hierarchy is questioned, but significant correlations are discovered in the systems interpretation of the psychological and spiritual dimensions as well as in the use of “centeredness” by both thinkers.

*Keywords:* centeredness; complexity; dimensions; hierarchy; levels; life; potentiality; self-awareness; spirit; systems theory; Ludwig von Bertalanffy.

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The problem with comparing Paul Tillich and Pierre Teilhard de Chardin lies not in the lack of corresponding themes but in their abundance. In addition, each has assembled a conceptual system of vast sweep and great inclusiveness, with all elements tightly interwoven to the extent that any discussion of one inevitably leads to a discussion of all. Directing traffic at the intersection of their thought requires considerable vigilance. I also include here the notion of system, sometimes known as the systems approach, in an attempt to shed additional light on several common themes. So now our task is to direct traffic between three intersecting streets—a vastly more demanding task. In this situation pileups are not uncommon, so stay alert.

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Because the notion of *system* will provide much of the vocabulary and texture of this discussion, a short introduction is in order. Systems theory arose in part in reaction to attempts in the biological sciences to reduce the dimension of the organic to that of the inorganic, of reducing biology to chemistry and physics. Ludwig von Bertalanffy, hailed by many as the father of systems theory, recognized early on that this reductionistic program resulted in the death of life. He sought a mediating approach between the two incompatible options in the biological theory of his day, mechanistic materialism and vitalism. The notion of system provided this mediating principle.

In simple, even trivial, terms, a system may be defined as a bounded arrangement of parts or components and the relationships between them. Indeed, the whole is nothing more than the integration of the parts through their relationships. Systems may be found in every realm. In fact, indivisible whole or absolutely simple elements are vanishingly rare in nature. The differences between systems lie primarily in their organization. Systems theorists do not ask "What is it made of?" but rather "How is it arranged?" The degree of organization or arrangement is determinative. Machines and organisms are systems, albeit at opposite extremes of the spectrum of organization. Machines are relatively simple, while living things are rich and complex. They exist along a continuum, but the distance between them is enormous. Teilhard recognized this richness when he characterized life as the "physics of immensity" (1959, 150).

This immensity of associated particulars in an organic system is neither arbitrary nor homogeneous. It is highly structured. Both Bertalanffy and Teilhard rely heavily on the notion of complexity to express this structure. Teilhard offers a clear account:

We will define the "complexity" of a thing as the quality the thing possesses being composed—

- a. of a large number of elements, which are
- b. more tightly organized among themselves.

In this sense the atom is more complex than the electron, and a living cell more complex than the highest chemical nuclei of which it is composed, the difference depending (on this I insist) not only on the number and diversity of the elements included in each case, but at least as much on the number and correlation of the links formed between these elements. It is not therefore a matter of simple multiplicity but of organized multiplicity: not simple complication but centered complication. (Teilhard 1964, 105)

Essential to the "centered complication" of any natural system is the notion of groupings of components to form ever more complex and inclusive levels within the system itself. That is, systems are hierarchically arranged such that simpler constituents integrate at one level to give rise to units at the next level constituted by this union. This structure means that the components of any level look "down" as systems to their components

and “up” as subsystems to greater systems of which they are the essential components. Except at the extremes, all natural systems are included in what Arthur Koestler called the “Janus effect” (1967, 48) because they do not escape this character of being compounded components. Teilhard, who subscribes to this principle, puts it nicely: “Each element of the cosmos is woven from all the others; from beneath itself by the mysterious phenomenon of ‘composition,’ which makes it subsistent through the apex of an organised whole; and from above through the influence of unities of a higher order which incorporate and dominate it for their own ends” (Teilhard 1959, 44).

Tillich takes exception to this language of hierarchy or ascending scale of levels as a “uniting principle” (Tillich 1963, 13). “The term ‘level,’” he says, “is a metaphor which emphasizes the equality of all objects belonging to a particular level. They are ‘leveled,’ that is, brought to a common plane and kept on it. There is no organic movement from one to the other; the higher is not implicit in the lower, and the lower is not implicit in the higher” (p. 13). This leaves the only relation of levels as interference in the form either of “control” or “revolt.” A primary example of control is mechanistic reductionism in which “the inorganic swallows the organic” (p. 14). A corresponding example of revolt is vitalism, where, Tillich continues, “inorganic processes are interfered with by a strange ‘vitalist’ force” (p. 14).

His solution is to replace the metaphor *level* with that of *dimension*. The advantage of *dimension* is that no interference is possible between several dimensions. In terms of space, for example, “depth does not interfere with breadth, since all dimensions meet in the same point” (p. 15). He lists the inorganic, organic, psychological, spiritual, and historical as the major dimensions of life while admitting that the actual number of intermediate dimensions is indefinite.

It is not clear that Tillich has advanced the issue significantly through his introduction of this new cluster of dimensional metaphors to replace those of hierarchy and levels. While the substitution avoids the interference problems of control and revolt, it leaves the troubling situation of the relation of the inorganic and the organic mostly in place. Actually, neither insulated levels nor dimensions discloses very much. The problem is that Tillich overemphasizes the distinction between levels by allowing no association between adjacent levels and by referring only to the common features of the components of one level while saying little about their consolidating interaction. Teilhard and Bertalanffy would disagree with his criticism that there is no organic movement from one level to another. It is precisely the coming together of particular elements at one level through association and connection (Teilhard referred to it as *rapprochement*) that gives rise to entities constituting the next higher level and provides for this organic movement. These more complex entities are different from their constituents in new and perhaps unpredictable ways, but they certainly are

not independent of them. There is no severe demarcation between adjacent levels such that neither participates in the other. Any complex system presupposes the stable integration of its parts without which it would have no existence as a unique emergent entity. Indeed, the character and wholeness of any system as a being in its own right arises from the interconnectiveness and interaction of its components. It is constituted by this rich and dynamic association. I have used "levels" here, but I could have used "dimensions" instead and arrived at the same account. Perhaps the more appropriate metaphor is neither levels nor dimensions but constitutive inclusiveness in which Tillich's "interference" is replaced by the more neutral "influence" or "mutual dependency."

In concluding his discussion of this topic, Tillich introduces an idea with which Teilhard and systems theorists can readily agree. He says that dimensions may be graded according to value: "That which presupposes something else and adds to it is by so much the richer" (p. 17). "Historical man" is the highest grade and therefore to be most valued because he "includes the maximum number of potentialities in one living actuality" (p. 17). A complex system is rich in terms of its behavior. The greater the complexity of a system, the greater its range of possible action. With complexity come versatility, responsiveness, novelty, creativity, and directed action. Such systems are *open* in that they are capable of extensive and vital engagement with the world. The corresponding dimensions in Tillich are the psychological, spiritual, and historical. They are compatible with an account of open systems.

Tillich frequently refers to "the multidimensional unity of life" (p. 15). By this he means that these higher dimensions—the organic, psychological, spiritual, and historical—are potentially present in and funded by the lower dimension of the inorganic, in the physical and chemical realms. Indeed, he defines *life* as an ontological concept. Life is the process of the actualization of potential and a structural condition of all beings, not just organic or living ones. Hence, the higher dimensions of life are "potentially real" (p. 15) in the inorganic where they await the appearance of appropriate environmental conditions for their actualization. Indeed, Tillich says that "the inorganic has a preferred position among the dimensions in so far as it is the first condition for the actualization of every dimension" (p. 19). So, the multidimensionality of life includes possibility as well as actuality.

At this point Tillich and Teilhard are not far apart, except in their language. Tillich prefers an account that conforms to traditional ontological vocabulary. To this extent he is insightful but not always specific. Teilhard employs terms and concepts taken from the natural sciences and adds many neologisms. The process Tillich calls life is for Teilhard the universal process of ingathering in which the radically disconnected elements of a field of infinite multiplicity enter into an ever greater and more inclusive asso-

ciation tending toward and finally culminating in a cosmic arrangement of unsurpassable complexity and centeredness, the Omega Point. Of course, evolution describes this grand process as advancing through the various dimensions of the inorganic to complex organisms to the human species and its consolidation in the noosphere (Earth's envelope of consciousness) and eventually beyond. The higher dimensions emerge from the lower, thereby actualizing the potential of the inorganic, and they continue to depend on the inorganic for their material foundations even as they strive forward.

The two thinkers appear to diverge in one important respect, however. Tillich prefers to situate potentiality in the present actual where it awaits the opportunity to unfold and develop. Teilhard seems to locate potentiality in the future as unrealized prospects awaiting actualization through complexification. This difference may be no more than a matter of emphasis or way of speaking, but it may also be an important ontological distinction that gives rise to the ways that Tillich and Teilhard characterize their perspectives and approaches.

In pursuing further this question of the relationship between the inorganic and the organic it would be fruitful to turn our attention to several of Tillich's higher dimensions, especially the psychological and spiritual (a discussion of the historical dimension is too ambitious for these limited remarks). The psychological dimension emerges from the organic when the constellation of conditions allowing for its actualization are present. When compared to his discussion of the other dimensions, Tillich pays relatively scant attention to the psychological dimension. Its distinguishing feature seems to be that "inner awareness" that appears in the higher animals. In other discussions, he refers to "self awareness." Here is his definition: "Self awareness means that all encounters of a being with its environment are experienced as related to the individual being that is aware of them" (p. 36).

In a discussion of mind in its relation to the spiritual dimension (p. 24), Tillich includes awareness, perception, and intention, and also intelligence, will, and directed action. Mind, he says, appears in rudimentary form in higher animals but becomes a matter of spirit only in humans beings, where it is related to the universals in perception and intention, thereby generating true meaning.

Teilhard places utmost importance on the psychological dimension. Self-consciousness is consciousness of oneself as an object. Animals know, but only humans know that they know, and this makes all the difference, because this dimension of reflection is accompanied by that fearful capacity of freedom, the presence of which is decisive for Teilhard.

With respect to the dimension of spirit, Teilhard frequently associates spirit with this self-consciousness, sometimes even using this term and others, such as thought, as synonyms. This complicates any attempt to relate

his use of these words to the multiple terms Tillich uses. It is not the case, however, that Teilhard restricts his use of spirit to self-consciousness. One of Teilhard's most powerful and contentious ideas is the central role of spiritual energy, which is the "within" (*dedans*) of all things, so fundamental to the cosmic process of complexification. In its primordial manifestations, spiritual energy drives the elementary particles of being into associations and these primitive systems into greater associations with like entities, giving rise to ever more complex systems. In the realm of the inorganic, spiritual or "radial" energy is dominated by the material aspect of the physical world and by its dialectical partner "tangential" energy, the energy of thermodynamics. Radial energy becomes detectable only in high-grade or complex inorganic systems, living systems, and finally dominates in the most complex three pounds of matter known in the universe, the human brain. This description is, of course, a simple account of Teilhard's "law of complexity consciousness."

Tillich concurs in his location of spirit: "the dimension of spirit appears for us only in man" (1963, 317). But at one point he allows for a more inclusive use of spirit. He asks "what keeps life alive?" and answers that "spirit is the power of life" but quickly adds the caveat that "spirit is not identical with the inorganic substratum which is animated by it; rather spirit is the power of animation itself and not a part added to the organic system" (p. 21). Despite this apparent disagreement with Teilhard, apply a little ingenuity and imagination and Tillich's point can be translated into the systems perspective. For example, in one of his essays Bertalanffy asks what the difference is between a living and a dead dog. After all, in terms of the inorganic dimension, a living dog and its corpse are essentially identical in their physical composition. What is surrendered at the point of death is the dynamic process of life, Tillich's "power of animation," which, in terms of systems theory, is the incredibly complex pattern of interaction between the immense number and variety of components of the animal system that is terminally disrupted when the animal dies. The conditions necessary for life, expressed in the terms provided by biology (metabolism) or more generally in the notions of the theory of living systems, are no longer present, and Bertalanffy's canine system falls apart, goes to pieces, loses its center, or, as Tillich says in quoting Genesis 3:19, "Biblically speaking, you return to the ground, for out of it you were taken" (p. 19).

Likewise, Teilhard's spiritual energy is not some sort of ghostly vapor that saturates and animates complex organic systems. Rather, it is utterly dependent upon physical or tangential energy, the measure of which is the task of science. Without the vehicle of inorganic and organic arrangement, and without the increase of that arrangement over time, spiritual energy would not be manifested, sustained, and increased. It, too, would be lost in the dissolution of its material vehicle at the point of death. This account resonates with Tillich's multidimensionality of life. The actual-

ized higher dimensions, beginning with the organic and moving on to include the psychological, spiritual, and historical, are dependent on the "constellation of inorganic structures"; without these structures, "all realms of being would dissolve" (p. 19). As dramatized by Bertalanffy's dog, the death of an organism is such dissolution.

Tillich and Teilhard come very close in their understanding of another common term, *center*, and its variants. Tillich associates centeredness with the individual: "The fully individualized being is . . . the fully centered being" (p. 32). As he continues, Tillich closely approaches the systems understanding. "The term 'centeredness' is . . . metaphorically applied to the structure of being in which an effect exercised on one part has consequences for all other parts" (p. 33). Because individualization is paired as an ontological and hence universal pole with participation, its correlated centeredness is also universal and applies even in the inorganic realm. "Every living thing," Tillich writes, "is sharply centered; it reacts as a whole" (p. 35).

Teilhard and systems theory substantially agree. For Teilhard centeredness is predictably the effect of complexification and a primary manifestation of spiritual energy. A system is centered, or possesses a center, when its many components are grouped together with a high degree of organization such that, as Tillich says, an effect on one part has consequences for all the other parts. This is just another way of saying that, in their overall coordination, the elements give rise to a whole whose actions supervene as an individual over the vast multitude of its constituents. The many become one—a whole or individual—and that one enjoys a freedom or spontaneity that is beholden to the rich arrangement of its parts and not reducible to them. Or, as Teilhard insists, "Spiritual perfection (or conscious 'centricity') and material synthesis (or complexity) are but two aspects or connected parts of the same phenomenon" (Teilhard 1959, 60).

If nothing more, this exploration reveals the Olympian inclusiveness of the respective philosophical systems of Tillich and Teilhard. Nothing remains unaccounted for in the shadows beyond the ontological frame. One could anticipate overlapping agreement about certain aspects of the world. What is unanticipated is the degree to which the concepts and terminology of systems thought, an approach more indebted to science than metaphysics, slips smoothly into this common ground to contribute illumination and insight.

#### NOTE

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